Appl. No. 09/909,049
Amd. Dated August 9, 2005
Reply to Final Office Action of June 30, 2005

REMARKS/ARGUMENTS

Reconsideration of the rejections set forth in the Final Office Action dated June 30, 2005 is respectfully requested. Claims 1-6, 8-16, 18-31, 33, 37, and 38 are currently pending and have been rejected.

Claim 1 has been amended to include the limitation originally included in now cancelled claim 7. Claims 8 and 9 have been amended to have proper antecedent basis in view of the cancellation of claim 7. Claim 12 has been amended to include the limitation of now cancelled claim 17. Claim 18 has been amended to provide proper antecedent basis in view of the cancellation of claim 17. Claim 19 has been amended to correct a typographical error, *i.e.*, "identifics" has been amended to read as "identifiers." Claim 28 has been amended to include the limitation of now cancelled claim 28. Claim 33 has been amended to incorporate the limitation of claim 34, which has been cancelled. Claims 35 and 36 have been amended in a sincere effort to expedite prosecution.

Rejections under 35 U.S.C § 102 and 35 U.S.C § 103

Claims 1-3, 5, 8-14, 37, and 38 have been rejected under 35 U.S.C § 102(e) as being anticipated by Allen, U.S. Patent Publication No. 2001/0032271 (Allen). Claims 19, 21-23, 24, 26, and 27 have been rejected under 35 U.S.C § 103(a) as being obvious over Allen. Claims 4, 6, 16, 18, 20, 25, 28-30, and 33 have been rejected under 35 U.S.C § 103(a) as being unpatentable over Allen as applied to claims 1, 5, 12, 17, 19, and 24, and further in view of Applicant's prior art. Claim 15 has been rejected under 35 U.S.C § 103(a) as being unpatentable over Allen as applied to claim 12, and further in view of Swallow, U.S. Patent No. 6,751,190 (Swallow). Claim 31 has been rejected under 35 U.S.C § 103(a) as being unpatentable over Allen as applied to claim 12, and further in view of Swallow.

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1. Independent Claims 1, 12, and their dependents

Independent claim 1 requires that a device includes a route generator and a list mechanism. The route generator is arranged to generate an alternate circuit path between a first node and a second node using a list mechanism. The route generator is arranged to accept an input that is arranged to specify one of a nodal diverse constraint and a link diverse constraint for the alternate circuit path. The alternate circuit path is generated so as not to include the first element identified by the list mechanism, and is not affected by a failure of the first element.

The ability to specify an <u>input</u> of either a nodal diverse constraint or a link diverse constraint, an alternate path may be routed to include either no nodes that are included in a corresponding primary path or no links that are included in the primary path, respectively. As such, the routing of an alternate path may occur with a relatively high level of efficiency (Specification, on page 11 at lines 1-4).

The Examiner has argued, on page 2 of the Final Office Action dated June 30, 2005, that Allen discloses a system "wherein the route generator is arranged to accept an input, the input being arranged to specify one of a nodal diverse constraint or a link diverse constraint for the alternate circuit path (see paragraphs [0037-0038])." Further, on pages 8 and 9 of the Final Office Action dated June 30, 2005, the Examiner has stated that "the word constraint is too broad to overcome the prior art. Allen does in fact generate a route that constrains a second path to be diverse from an initial path as cited in paragraphs [0037] and [0038], where an explicit path, which does not overlap the initial path, is generated."

The Applicant respectfully disagrees with the Examiner, and submits that Allen does not disclose or suggest a system where are route generator is arranged to accept an <u>input</u>, or that such an input is arranged to specify either a nodal diverse constraint or a link diverse constraint. While the Applicant also disagrees with the Examiner's argument that the word constraint is too broad to overcome the prior art, the Applicant notes that <u>Allen does not appear to disclose an input that specifies any constraint.</u>

At paragraph [0037], Allen teaches as follows:

> "....In order to reduce likelihood that the secondary path
> shares resources and therefore a common point of failure with the
> initial path, originating node 102a may establish an explicit path
> having different routing nodes using MPLS ER-LSP.
> Alternatively, again, any other suitable path establishment
> mechanism may be used to establish the secondary path. So, for
> example, hop-to-hop LSR path establishment could be used."

At paragraph [0038], Allen states:

> ".... Each node receiving this second path establishment
> message, along the subsequent path, **may use local knowledge of
> resources used by hops to and from the node to assess overlap
> in these resources and the primary path to make routing
> decisions** in manners exemplary of the present invention.... a node
> 102 may either choose different resource to complete the path or
> dispatch a message indication that a desired path is inappropriate as
> it lacks diversity from the initial path." [emphasis added]

Paragraphs [0037] and [0038] appear to disclose establishing paths having different
routing nodes and of using a path establishment request message. However, Allen fails to
disclose an **input accepted by a route generator that specifies any constraint, let alone either a
nodal diverse constraint or a link diverse constraint**. A path establishment request message is
not disclosed as being anything more than a message which requests that a second path be
established. There is no disclosure that the path establishment request message is associated with
an input that specifies either a nodal diverse constraint or a link diverse constraint. Instead, the
Applicant notes that Allen teaches of using local knowledge to assess overlap in resources to
make routing decisions. Such local knowledge is not disclosed or even remotely suggested as
being an **input** that is accepted by a route generator, and is not disclosed as associated with either
a nodal diverse constraint or a link diverse constraint. As such, claim 1 is believed to allowable
over Allen for at least these reasons.

Allen discloses establishing an explicit path having different routing nodes from an initial
path. However, there is no disclosure or suggestion that establishing the explicit path having

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different routing nodes involves any <u>input</u> (accepted by a route generator) that specifies a nodal diverse constraint or a link diverse constraint.

Claims 2-6 and 8-11 each depend either directly or indirectly from amended claim 1, and are therefore each believed to be allowable over the cited art for at least the reasons set forth with respect to claim 1. Each of these claims recites additional limitations which, when considered in light of claim 1, are believed to further distinguish the claimed invention over the cited art.

Independent claim 12 recites similar limitations as recited in claim 1. As such, claim 12 and its dependents are each believed to be allowable over the cited art for at least the reasons set forth above with respect to claim 1.

2. Independent Claims 19, 24, and their dependents

Independent claim 19 recites an element for use in an optical network. The element includes a route generator arranged to compute a first circuit path as well as a list. The list includes a plurality of identifiers arranged to identify links. The route generator computes a second circuit path that does not include selected links identified by the plurality of identifiers included in the list.

The Examiner has argued that Allen teaches the limitations of claim 19. It is respectfully submitted that Allen does not teach of a list which includes identifiers for a plurality of links that are not to be included in a second circuit path. The Examiner has argued that a Bloom filter disclosed by Allen implies a list that contains information about an initial path (Final Office Action dated June 30, 2005, page 5). At paragraph [0036], Allen discloses that a Bloom filter contains a route digest for an initially established path. Such a route digest is not a list but is, instead, a series of bits that form a bitmap. It is respectfully submitted that a bitmap is not a list. The Applicant notes that paragraph [0034] of Allen reads in part as follows:

> ".... Conveniently, a Bloom filter may be used to compress
> the route digest for paths across such a network into a **bitmap of a
> fixed length field, in place of a** token **list** of arbitrary length.
> Such a bitmap may represent an arbitrary amount of information
> and therefore facilities scaling the network." [emphasis added]

In paragraph [0034], not only does Allen teach that a route digest is a bitmap, <u>Allen teaches away
from a route digest being a list</u>. Hence, contrary to the Examiner's argument, Allen does not
imply a list and a list is not inherent to Allen. Therefore, claim 19 is believed to be allowable
over the cited art for at least this reason.

Claims 20-23 each depend form independent claim 19, and are believed to be allowable
over the cited art for at least the reasons set forth with respect to claim 19. Each of these claims
recites additional limitations which, when considered in light of claim 19, are believed to further
distinguish the claimed invention over the art of record.

Independent claim 24 recites similar limitations as recited in claim 19. As such, claim 24
and its dependents are each believed to be allowable over the cited art for at least the reasons set
forth above with respect to claim 19.

3. Independent Claims 28, 33, and their dependents

Independent claim 28 recites a method for computing an alternate circuit path that
corresponds to a primary circuit path. The method includes identifying a protected link using the
routing algorithm as being inaccessible to the alternate circuit path. The alternate circuit path is
created using the routing algorithm such that a first element and the protected link are not
included in the alternate circuit path.

The Examiner has acknowledged that Allen fails to teach of protected links. However,
the Examiner has agued that it would have been obvious to modify Allen to enable an alternate
circuit path to avoid a protected link and to identify the protected link as being in accessible. It is

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respectfully submitted that, as disclosed by the Applicant at lines 1-10 of page 6 of the Specification, that network administrators conventionally must manually specify that an alternate circuit path does not include protected links. Claim 28 recites that a routing algorithm identifies a protected link as being inaccessible, and that the routing algorithm creates an alternate circuit path that does not include the protected link. The fact that protected links are known to be included in networks, and that network administrators manually specify that an alternate circuit path does not include a protected link does not render it obvious that a routing algorithm identifies a protected link as being accessible, and routes an alternate circuit path accordingly. As such, claim 28 is believed to be allowable over the cited art for at least these reasons.

Independent claim 33 recites similar limitations as recited in claim 28. As such, claim 33 and its dependents are each believed to be allowable over the cited art for at least the reasons set forth above with respect to claim 28.

Conclusion

For at least the foregoing reasons, the Applicants believe all the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned at (408) 868-4096.

Respectfully submitted,

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